

Vibrio Parahemolyticus, a Newly Recognized Cause of Food-borne Illness

IN THE UNITED STATES the three most commonly encountered causes of food-borne illness are salmonellae infection, *Clostridium perfringens*, and staphylococcal enterotoxin. More recently, illness from *V. parahemolyticus* has also been recognized. In Japan it is one of the leading causes of food-borne disease, and recently has been identified as an important pathogen in other countries.

It was first recognized as a cause of food-borne illness in Japan in 1950 when 272 persons developed acute gastroenteritis after consuming sardine larvae; 20 died. In the United States there have been ten reported outbreaks attributed to *V. parahemolyticus*. The first two were unconfirmed and reported in 1969 from the state of Washington and two more outbreaks were reported from that state in 1970; three confirmed outbreaks were reported from Maryland in 1971 and two more in 1972. An unconfirmed outbreak was reported from Hawaii in 1972. In all of these outbreaks, seafood was identified as the vehicle; food-borne outbreaks of *V. parahemolyticus* studied elsewhere also have shown exclusive association with seafood.

V. parahemolyticus is an enteropathogenic, Gram-negative, rod-shaped facultative microbe preferring alkaline conditions and a salt concentration of 2 to 4 percent. It appears to be able to live freely in marine waters without an animal host. In the United States the organism has been isolated from fish, crustaceans, and shellfish at Puget Sound on the Pacific Coast; from shellfish off the coasts of Texas and Louisiana; and from various marine seafood from the Chesapeake Bay and the New England shore area.

In the largest outbreak in the United States to date, which occurred in Maryland in August 1971, 320 persons became ill eight to twenty-two hours after consuming steamed crabs. The median incubation period was 15 hours and the median duration of illness was two days. Symptoms included diarrhea (98 percent), abdominal cramps (78 percent), nausea (76 percent), vomiting (74 percent), fever (26 percent), headache (25 percent), and chills (10 percent). *V. parahemolyticus* was cultured from enteric specimens and seafood.

By considering symptoms and incubation periods, illness from *V. parahemolyticus* may be distinguished from that of staphylococcal poisoning,

TABLE 1.—Distinguishing Features of *Vibrio Parahemolyticus*

Etiologic Agent	Median Incubation Period (hours)	Fever	Vomiting	Diarrhea
Staphylococcal enterotoxin . . .	3	—	+	+
<i>Clostridium perfringens</i> . . .	12	—	—	+
<i>Vibrio parahemolyticus</i> . . .	15	±	+	+
<i>Salmonella</i>	24	+	+	+

clostridium perfringens poisoning, and salmonella infection in outbreak situations. No great reliance as to probable cause, however, should be placed on reviewing the symptoms of a single case of food-borne illness. Table 1 summarizes the distinguishing features.

V. parahemolyticus is undoubtedly unrecognized in some outbreaks from seafood in which salmonellosis or shigellosis is initially believed to be the etiologic agent but where these agents cannot be confirmed in the laboratory. *V. parahemolyticus* requires high salt and pH concentrations to suppress the growth of other organisms. Thio-sulphate citrate bile salts agar (TCBS) is one of the recommended media for its isolation.

Although illness due to *V. parahemolyticus* has not yet been reported in California, physicians should be alert to this potential pathogen.

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Zoster Immune Globulin (ZIG)

IN 1971 the Center for Disease Control in Atlanta established a program for the distribution and study of zoster immune globulin (ZIG) and release of the material began in January, 1972. This investigational material prepared from the plasma of healthy donors convalescing from herpes zoster was demonstrated to be a safe and effective agent in the prevention of severe varicella (chickenpox) in susceptible persons when given within 72 hours of exposure. It is indicated for patients with impaired or suppressed immune status (secondary

to malignancy or immunosuppressive medications) for whom varicella can be severe or fatal. Release of ZIG is arranged through designated regional consultants. In California the consultants are Dr. Paul Wehrle in Los Angeles and Dr. Moses Grossman in San Francisco. Administration of ZIG should be confined to patients who have no history of varicella and (when the test is available) a negative varicella-zoster (VZ) complement fixation test who are significantly immunosuppressed and who have been closely exposed within the preceding 72 hours to persons with either varicella or herpes zoster. Close exposure is defined as a prolonged intimate contact such as with a sibling or a playmate seen daily. The national supply of ZIG for this purpose is limited. Physicians and medical facilities are urged to refer patients in otherwise good health who are convalescing from herpes zoster to donate plasma for this program. Details regarding donor selection are available from the Vaccines Investigations and Evaluations Unit, Center for Disease Control, Atlanta, and from the California State Bureau of Communicable Disease Control in Berkeley (telephone number: (415) 843-7900, ext 249).

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Primary Amebic Meningoencephalitis

PRIMARY AMEBIC MENINGOENCEPHALITIS is a newly recognized lethal disease which appears to be potentially treatable.

Acanthamoeba are widely disseminated not only in soil, but also in water, sewage and other decaying matter. Both epidemiological and laboratory evidence suggest that these protozoa feed mainly on fecal bacteria, and that infection is usually associated with immersion in contaminated water warm enough to permit their propagation. Culbertson et al demonstrated in 1959 that *acanthamoeba* could produce meningoencephalitis if introduced either intracerebrally or by the nasal route in laboratory animals. In 1965 Fowler and Carter reported cases of acute pyogenic meningitis and since then at least 57 cases have been reported in the literature, although in only 15 of these cases were *ameba* present.

Most of the reported cases of amebic meningoencephalitis have occurred in warm climates, and usually there is a history of swimming. In one

instance the patient had swum in a heated indoor pool, and in another in a hot mineral spring. In another instance, immersion in a mud puddle formed by a thunderstorm was indicated.

In 1970, Apley reported the use of amphotericin B in three children, only one of whom died. In a review article by Carter in 1972, additional success of amphotericin B treatment was reported.

Therefore, the diagnosis of primary amebic meningoencephalitis should be considered in all patients with purulent meningitis in whom no bacteria can be found on Gram-stained smear. In view of the lethal natural history of this disease, amphotericin B therapy should be started as soon as the diagnosis is established.

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Herpesvirus Infections and Cancer of the Cervix

HERPESVIRUS HOMINIS, TYPE 2, (HSV-G) has become recognized as a sexually-acquired infection in recent years. Further, an association between cervical cancer and sexual activity was noted by Terris. Inevitably, investigators turned their attention to a possible relationship between genital herpesvirus and cervical carcinoma.

Several workers in this field have reported similar findings which show an increased prevalence of HSV-G antibody in women with cervical neoplasia as compared with matched controls without evidence of dysplasia. Nahmias et al found women having HSV-G and dual antibodies (a mixture of Types 1 and 2) as follows: invasive carcinoma 83 percent, controls 35 percent; *in situ* cervical carcinoma 70 percent, controls 24 percent; histologically confirmed dysplasia 56 percent, controls 18 percent, cervical atypia diagnosed by cytological examination only 40 percent, controls 20 percent.

Royston and Aurelian, using a different technique, demonstrated a similar difference between study cases and their respective controls. However, their studies show the presence of antibodies in 100 percent of the cases of both invasive carcinoma and carcinoma *in situ* and in 92 percent